IN THE CLAIMS

Please amend the claims as follows:

Claims 1-23 (Cancelled)

24. (New) A functional element, comprising:

a shaft part;

a head part axially aligned with said shaft part and forming a hollow tubular wall adapted for forming a riveting joint with a panel element;

wherein said shaft part defines a shaft diameter and said tubular wall defines an outer wall diameter substantially the same as said shaft diameter, said tubular wall being deformable thereby forming a flange with the panel element; and

wherein said head part includes a distal end defining an outer edge being rounded for punching and drawing and an inner edge defining a cutting surface remote from said shaft part.

25. (New) A functional element in accordance with claim 24, wherein said distal end defines an outer edge rounded for punching and drawing and an inner edge defining a conical cutting surface.

26. (New) A functional element in accordance with claim 24, wherein said head part defines an inner surface of said tubular wall having a substantially tubular shape.

27. (New) A functional element in accordance with claim 24, wherein said head part includes a longitudinal dimension for forming an annular fold for securing the sheet metal part and the thickness of the sheet metal part plus double the length of the radius of said annular fold.

28. (New) A functional element in accordance with claim 24, wherein said shaft part is hollow.

29. (New) A functional element in accordance with claim 24, wherein said shaft part defines a threaded outer surface.

30. (New) A functional element in accordance with claim 29, wherein said shaft part defines a threaded inner surface.

31. (New) A functional element in accordance with claim 24, wherein said functional element is made as a cold formed part.

32. (New) A functional element in accordance with claim 31, wherein said thread is formed from one of a thread rolling process and a compression forming process.

33. (New) A functional element comprising:

a shaft part and a head part axially aligned with said shaft part forming a rivet flange-less interface with said shaft part, wherein said head part forms a hollow tubular wall adapted for forming a riveting joint with a panel element and includes a distal end providing a piercing surface remote from said shaft part, and wherein said distal end defines an outer edge rounded for punching and drawing and an inner edge defining a conical cutting surface.

34. (New) A functional element in accordance with claim 33, wherein said head part defines an inner surface of said tubular wall having a substantially tubular shape.

35. (New) A functional element in accordance with claim 33, wherein said head part includes a longitudinal dimension for forming an annular fold for securing the sheet metal part and the thickness of the sheet metal part plus double the length of the radius of said annular fold.

36. (New) A functional element in accordance with claim 33, wherein said shaft part is hollow.

37. (New) A functional element in accordance with claim 33, wherein said shaft part defines a threaded outer surface.

38. (New) A functional element in accordance with claim 33, wherein said shaft part defines a threaded inner surface.

39. (New) A functional element in accordance with claim 33, wherein said functional element is made as a cold formed part.

40. (New) A functional element in accordance with claim 37, wherein said thread is formed from one of a thread rolling process and a compression forming process.

41. (New) A method of manufacturing a joint between a functional element and a sheet metal part, wherein said functional element includes a head part defining a tubular wall having a distal end configured for piercing said sheet metal part, comprising the steps of:

providing a die for deforming said head part;

supporting said sheet metal part upon said die;

simultaneously piercing said sheet metal part with said distal end of said head part thereby forming an aperture in said sheet metal part defining a rim and driving said head part into said die;

deforming said head part thereby forming a flange from said tubular wall overlaying said rim and driving said rim downwardly into said die; and

forming an annular fold into said distal end of said head part with said die, wherein said annular fold contacts said sheet metal part thereby retaining said sheet metal part between said flange and said annular fold.

42. (New) A method in accordance with claim 41, wherein said step of forming said flange portion is further defined by forming said flange portion to a radius less than an inner radius provided by said die.

43. (New) A method in accordance with claim 41, further including the step of forming an annular recess into said sheet metal part with said flange, wherein said recess is as least as deep as said flange is thick.

44. (New) A method in accordance with claim 42, wherein said step of forming said annular recess into said sheet metal part is further defined by said recess having a diameter substantially equal to said diameter of said flange.

45. (New) A method in accordance with claim 41, further including the step of depressing said flange thereby compressing said annular fold for forming an annular face.

46. (New) A method in accordance with claim 45, wherein said step of forming an annular face is further defined by orienting said annular face generally perpendicular to a longitudinal axis defined by said functional element.

47. (New) A method in accordance with claim 45, wherein said step of forming an annular face is further defined by locating said annular face generally in a plane defined by said sheet metal part.

48. (New) A method in accordance with claim 41, further including the step of forming a panel slug while piercing said sheet metal part and retaining said panel slug in said head part thereby strengthening said join formed between said fastening element and said sheet metal part.

49. (New) A component assembly comprising:

a functional element having a shaft part and a head part axially aligned with said shaft part and forming a hollow tubular wall having an outer diameter substantially the same as an outer diameter of said shaft part; and

a sheet panel, wherein said head part is deformed radially outwardly forming a rivet flange defining an annular channel on a first side of said sheet panel and forming an annular fold on a second side of said sheet panel thereby retaining said sheet panel therebetween.

50. (New) A component assembly in accordance with claim 49, wherein said sheet panel defines an annular recess having said annular fold disposed therein.

51. (New) A component assembly in accordance with claim 49, wherein said annular fold defines an annular face and said sheet panel defines a plane generally aligned with said annular face.

52. (New) A component assembly in accordance with claim 49, further including a panel slug formed from piercing said panel and being disposed inside said hollow tubular wall thereby reinforcing said hollow tubular wall.

53. (New) An apparatus for forming a riveting joint between a functional element having a tubular head and a sheet panel comprising:

a die having an end face with a generally annular recess disposed therein configured for deforming the tubular head of the functional element thereby forming a rivet flange at distal end of the tubular head and a radial fold spaced in the tubular head from the rivet flange;

a plunger projection disposed centrally in said annular recess and being cooperable with the tubular head of the functional element thereby piercing a panel slug from the sheet panel with said tubular head; and

wherein said plunger projection extends from said annular recess beyond said end face of said die.

54. (New) An apparatus as recited in claim 53, wherein said end face defines grooves spaced around said annular recess thereby forming anti-rotational features in the riveting joint.

55. (New) An apparatus for forming a riveting joint between a functional element having a tubular head and a sheet panel comprising:

an inner plunger;

an outer plunger defining a plunger passage for slidably receiving said inner plunger, wherein said inner plunger is movable between an receiving position for receiving the functional element into said plunger passage and an insertion position for inserting the functional element into the sheet panel; and

at least two segments supported by said outer plunger and defining an inner surface axially aligned with said plunger passage providing form features for clasping the functional element and being movable between an open position for receiving the functional element and a closed position for engaging the functional element.